



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): S. SOMEYA et al

Serial No.: (New Continuation application under  
37 CFR §1.53[b] of Application  
Serial no. 09/749,385)

Filed: February 28, 2002

For: TFT ACTIVE MATRIX LIQUID CRYSTAL  
DISPLAY DEVICES

Group: 2871

Examiner: K. PARKER

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R. Tallu

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR 1671.97 & §1.98**

Assistant Commissioner of Patents  
Washington, D. C. 20231

February 28, 2002

Sir:

In the matter of the above-identified application, applicants are attaching hereto, in a form equivalent to Form PTO-1449, a listing of all the art documents of record (cited by the Examiner/submitted by applicants) in the chain of co-pending applications (as listed on page 1 of the Specification), pursuant to the duty of disclosure/candor requirements. Also enclosed herewith is a copy of a newly uncovered published foreign document (JP 62-131578) along with a listing thereof in the accompanying equivalent Form PTO-1449.

This Information Disclosure Statement is being submitted concurrently with the filing of the above-identified continuation application and, therefore, this IDS meets the requirements pursuant to 37 C.F.R. §1.97(b).

As to the requirement of 37 C.F.R. §1.98(a)(3) for any concise explanation of relevance to the extent that any of

the listed documents is not in the English language, this is met by the discussion thereof in the original specification/prosecution history, the earlier submission of English language translations thereof/English language abstracts, the citation by the Examiner in the prior application and any pertinent discussion in the file histories of the corresponding prior application, and the comments hereinbelow regarding JP 62-131578.

With regard to the above referred-to published foreign document JP 62-131578, the following brief comments, which are based on a review thereof by applicants, are being submitted. JP 62-131578 (Shunichi) similarly disclosed a thin film transistor (TFT) arrangement such as in connection with a LCD display. However, the TFT display scheme disclosed by Shunichi is considerably different from that according to the present claimed subject matter. Referring to the Fig. 2 construction in Shunichi, it is noted that the type of metal used and shape of the gate electrode (e.g., 2) of the TFT in relation to the semiconductor film (e.g., amorphous silicon film) is contrary to that called for according to the present claimed subject matter.

According to the present invention, the gate electrode is such that it covers an area that is larger than that covered by the semiconductor film (of the TFT), the semiconductor region also comprising the channel region of the TFT. Moreover, in addition to such differences of the present invention with regard to that Shunichi, other differences exist. For example, although not limited thereto, it is noted that a gate electrode (e.g., 2 in Fig. 2(a)), according to Shunichi, is formed of a metal film such as Cr, Ni, NiCr, etc.; the source and drain electrodes thereof (e.g., 9 and 8 in Fig. 2(f)) are formed of a composite structure including a semiconductor film 7, which is a low resistance amorphous silicon film, a metal film such as CrNi, NiCr, etc. (e.g., 12 in Fig. 2(f)) and a transparent conductor film (e.g., ITO films 14-2 and 14-1).

It is noted that with regard to the Fig. 2 embodiment manufacture scheme in Shunichi, there is no teaching of applying an aluminum film with regard to any of the TFT electrodes. There is description, however, in connection with the conventional embodiment referred to in the background portion of Shunichi's disclosure. With regard to the background embodiment in Fig. 6 of Shunichi, the gate electrode, which is formed of a metal film, may include Cr, Al, Mo, etc. and that the source and drain electrodes are structured such that the upper layer of the composite layer associated therewith is formed of aluminum, etc. (e.g., 8 and 9 in Fig. 6(d), which is a conventional illustration in connection with background information in Shunichi et al). However Shunichi et al's disclosure is directed away from the background illustration discussed by Shunichi.


To reiterate, Shunichi et al failed to disclose or suggest those featured aspects, among others according to the present invention, calling for a display scheme in which the gate electrode which is formed of an aluminum film and, also, is dimensioned to be larger than that of the semiconductor film of the TFT. Also, in Shunichi et al's disclosure, such as with regard to the Fig. 2 manufacturing scheme thereof, does not employ an aluminum film for the source and drain electrodes nor, for that matter, a composite layer calling for a high melting point metal film and an aluminum film in a manner as that presently called for. It is also noted, that the spacing distance separating the source and drain electrodes between that of the lower surface side and that of the upper surface side, as taught by Shunichi, appears to be different from that called for in the present claimed subject matter. In view of these and other differences, the invention according to claims 1-22 in connection with the above-referenced concurrently filed new continuation application is clearly patentable over Shunichi's teachings.

It is understood that since copies of the listed documents should be available in the file wrapper of the prior application, copies thereof are not included herewith (except for listed document JP 62-131578), consistent with 37 C.F.R. §1.98(d) and pursuant to the guidelines set forth in M.P.E.P. §609.

It is submitted this IDS is in compliance with the rules of practice as well as with USPTO guidelines. Therefore, applicants respectfully request that it be entered and duly considered by the USPTO. Also, acknowledgment of such entry as well as of a formal consideration thereof by the Examiner is respectfully requested.

If any costs are due in accordance with the filing of this Information Disclosure Statement, please charge same to the account of Antonelli, Terry, Stout & Kraus, LLP, Account No. 01-2135 (501.26071CC8).

Respectfully submitted,  
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